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NATIONAL WATER QUALITY LABORATORY TECHNICAL MEMORANDUM 1995.05

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To: Assistant Chief Hydrologist for PC&TS
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Assistant Chief, Office of Water Quality
Deputy ACH for PC&TS for NAWQA
Area Hydrologists
District Chiefs
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Assistant Regional Hydrologists for NAWQA
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Chief, Yucca Mountain HIP
QA Manager, Yucca Mountain Project
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From: Peter F. Rogerson, Chief
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Subject: Nitrogen Isotope Sample Preservation for Water Samples

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Revision: None

Introduction

As stated in Office of Water Quality (OWQ) Technical Memorandum 94.16, beginning January 1, 1995, the NWQL will no longer provide analysis of nutrient samples preserved with mercuric chloride. This policy will also be applied to the preservation of nitrogen isotope samples. The use of mercuric chloride for preserving nitrogen isotope samples is being eliminated in favor of filtering plus chilling. For details regarding the elimination of mercuric chloride as a preservative for nutrient samples, please refer to Office of Water Quality Technical Memorandum 94.16.

Nitrogen Isotope Sample Processing

Samples collected for Lab Code 1717 (N-15/N-14 as ammonia), Lab Code 1718 (N15/N-14 as nitrate), or Lab Code 1921 (N-15/N-14 as ammonia and nitrate combined) should be filtered through a 0.45-micrometer filter into a glass or high-density polyethylene container. The minimum sample volume requirement is 0.2 mg/L Nitrogen. The container should be opaque or foil-wrapped and sealed with a poly seal cap. Samples should be kept chilled and immediately shipped to the NWQL by overnight mail. Please refer to NWQL Technical Memorandum 95.04 for shipping instructions.

Agreement with Contract Lab

OWQ Technical Memorandum 94.16 states that the comparative preservation tests for NO₃ and NH₄ were run for a minimum of 31 days on each sample. The overall results indicated that within analytical and test precision, filtration and chilling provide equivalent preservation to mercuric chloride plus chilling. Discussions with Global Geochemistry, the NWQL's contract lab for nitrogen isotope analysis, have indicated that once nitrogen isotope samples are prepared, there is no longer any danger from bacteria or microorganisms. Global has agreed to prepare NWQL nutrient water samples within 30 days of sampling. Therefore, nitrogen isotope samples should be shipped to the NWQL as soon as possible to ensure that they are shipped from the NWQL to arrive at Global Geochemistry's lab in a timely manner.

Disposal of Unused Mercuric Chloride Ampoules

Please refer to OWQ Technical Memorandum 94.16 for details regarding disposal of unused mercuric chloride ampoules.

If you have further questions regarding nitrogen isotope samples, please contact:

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References: OWQ Technical Memorandum 94.16
NWQL Technical Memorandum 95.04